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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,515	11/02/2001	Hiroki Tanaka	Fukuda Case 37	5954

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EXAMINER

COMBS, JANELL A

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

eb5

**Office Action Summary**

Application No.

10/003,515

Applicant(s)

TANAKA ET AL.

Examiner

Janelle Combs-Morillo

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghosh (US 4,721,537 A) in view of "Materials Science and Engineering: An Introduction", 3<sup>rd</sup> ed., Callister, pp 76-66, (hereinafter Callister).

Ghosh teaches an aluminum alloy example consisting of (in weight%): 5.8% Zn, 2.3% Mg, 1.5% Cu, 0.2% Zr, balance Al (Ex. 5, see column 4), which falls within the instant composition ranges. Ghosh teaches said alloy is typically in the form of heavy sections such as plate, bar, and forging stock (column 1 lines 29-31). Ghosh teaches that hot working said Al-Zn dispersoid (Zr) containing alloy at temperatures within the range of 220-400°C (column 2 lines 60-61, column 6 line 12) achieves dynamic recovery (column 2 line 25), and achieves a very fine grain size (column 2 line 32), such as 2.5  $\mu\text{m}$  for Ex. 5. During dynamic recovery, as the subgrain size decreases, the subgrain misorientation increases (column 2 line 31).

Ghosh does not specify that said alloy contains  $\geq 25\%$  of grain boundaries with misorientations of 3-10°.

Ghosh mentions “subgrain misorientation” (column 2 line 30), which Callister teaches is equivalent to “small-angle grain boundary misorientation” (Callister p 77), which is expected to be on the order of “a few degrees” (Callister p 77).

Because Ghosh teaches an alloy composition within the presently claimed ranges, and wherein said alloy is hot worked at low temperatures (substantially similar to the instant hot rolling temperatures given in the present specification), then substantially the same results, such as %grains with “small-angle grain boundary misorientation” (defined by Callister to be on the order of a few degrees), is expected to occur. Therefore, it is held that the combination of Ghosh (who teaches the instant alloy composition) along with Callister (who teaches the definitions of “small-angle grain boundary misorientation” and “subgrains”) has created a prima facie case of obviousness of the presently claimed invention.

Concerning dependent claim 2, Ghosh teaches a very fine grain size (column 2 line 32), such as 2.5  $\mu\text{m}$  for Ex. 5.

#### ***Allowable Subject Matter***

3. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. The closest prior art, Ghosh, is drawn to achieving a certain microstructure in thick forging blocks by deforming in three directions (along the 3 Cartesian axis), and does not teach or suggest how to form an alloy with the presently claimed alloying ranges, microstructural characteristics, complete with a thickness 1-1.5 mm.

***Response to Arguments***

5. In the response filed on July 28, 2003, applicant amended the specification, amended claims 1 and 2, added new claim 5, and submitted various arguments traversing the rejections of record.

6. The argument that Ghosh or Ghosh and Callister do not teach or suggest the instant invention has not been found persuasive (arguments page 7-8). Ghosh teaches a substantially similar process of making an Al-Zn-Mg-Cu alloy plate by hot working at low temperatures to achieve a fine grain structure and a given subgrain misorientation (see above for details).

7. The argument that Ghosh does not teach or suggest how to form an alloy with the presently claimed alloying ranges, microstructural characteristics, complete with a thickness 1-1.5 mm, has been found persuasive (see above).

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,